



# Complete anal sphincter complex disruption from intercourse: A case report and literature review

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## ABSTRACT

**INTRODUCTION:** Anal sphincter injuries are uncommon injuries outside of obstetric practice – but they may cause disastrous complications.

**PRESENTATION OF CASE:** We present a case of complete anal sphincter disruption from anal intercourse in a 25 year old woman. Clinical management is presented and technical details of the repair are discussed. She had an uneventful post-operative course and good continence after 154 days of follow up.

**DISCUSSION:** This is one of a handful of reported cases of anal sphincter disruption secondary to anal intercourse. The established risk factors in this case included receptive anal intercourse coupled with alcohol use. We review the pertinent surgical principles that should be observed when repairing these injuries, including anatomically correct repair and appropriate suture choice. There is little evidence to support simultaneous faecal diversion for primary repair of acute perineal lacerations.

**CONCLUSION:** Acute post-coital sphincter injuries should be treated operatively on an emergent basis, without diversion because they are low energy injuries with minimal tissue loss and excellent blood supply. Although repair of each injury should be individualized, the majority of these injuries do not require concomitant protective colostomy creation.

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## 1. Introduction

Anal sphincter injuries may cause disastrous complications including perineal cellulitis, enteric fistulae and faecal incontinence. These are uncommon injuries in civilian practice so there is little evidence upon which to base management decisions. We present a case in which anal intercourse led to complete anal sphincter complex disruption and discuss the management of these injuries.

## 2. Case presentation

A 25 year old woman presented to the Emergency Department complaining of severe perineal pain and bleeding after intercourse. She reported that her partner was inebriated and aggressively pursued un-protected anal intercourse despite resistance. Her vital signs were normal upon presentation. The abdomen was soft and non-tender. Examination of the perineum revealed the presence of a laceration at the anal mucosa, extending through the entire thickness of the anal sphincter complex into the vagina (Fig. 1). The ends of the sphincter complex had retracted laterally. There was minor bleeding originating from the lacerated edges of the perineal muscles. Apart from the laceration at the introitus, the vaginal examination was normal.

The patient consented to examination and repair under anaesthesia. One gram of intravenous Cefuroxime was administered for prophylactic at induction of anaesthesia. The sphincter ends were not visualized as they had retracted laterally. Lateral dissection beneath flaps of anal mucosa was required to identify and retrieve the sphincter ends (Fig. 2). The sphincter ends were mobilized (Fig. 3), the edges overlapped for 2 cm (Fig. 4) and then apposed with three 1/0 polypropylene (Prolene®) mattress sutures (Fig. 5). The perineal muscles were individually repaired with 2/0 polyglactin (Vicryl®) sutures and this was followed by repair of the rectal and vaginal mucosa with 3/0 polyglactin (Vicryl Rapide®) sutures (Fig. 6). A diverting colostomy to protect the repair was not employed in this case.

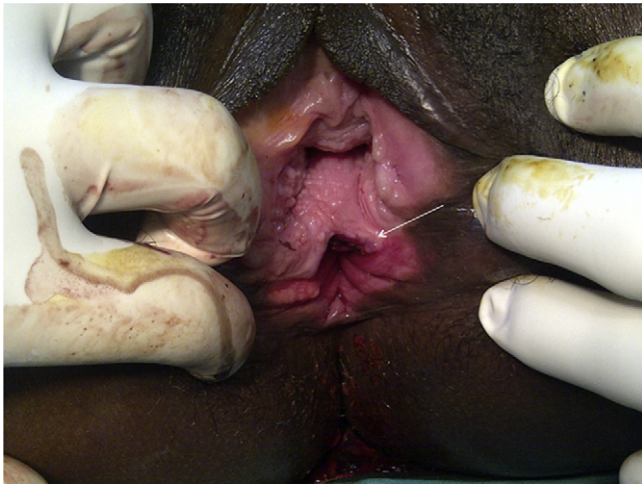
Post-operatively, the area was cleaned daily with sitz baths. Since this injury was detected and repaired early, no therapeutic antibiotics were administered. This patient's post-operative recovery was normal and she reported a Cleveland Clinic Incontinence Score of 1 at the time of hospital discharge.

At 154 days follow up, the area had healed uneventfully and there was good continence, with a Cleveland Clinic Incontinence Score of 0. She was discharged from surgical care at this point.

## 3. Discussion

Injuries to the anal sphincter are not uncommon in obstetric practice, reportedly occurring in up to 6% of women after vaginal delivery.<sup>1</sup> However, anal sphincter injuries outside of obstetric practice are much less common. Medical literature contains few

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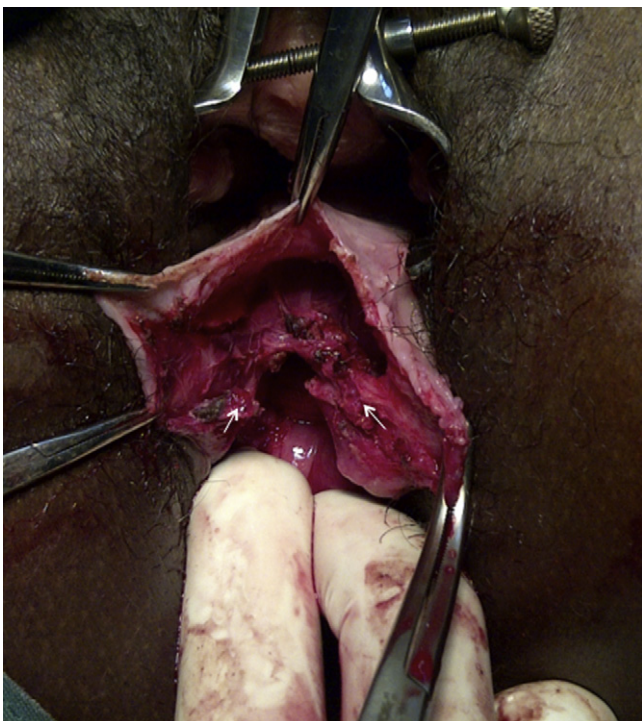


**Fig. 1.** The mucosa at the vaginal introitus has been lacerated (arrows) and the laceration extends posteriorly through the sphincter complex.

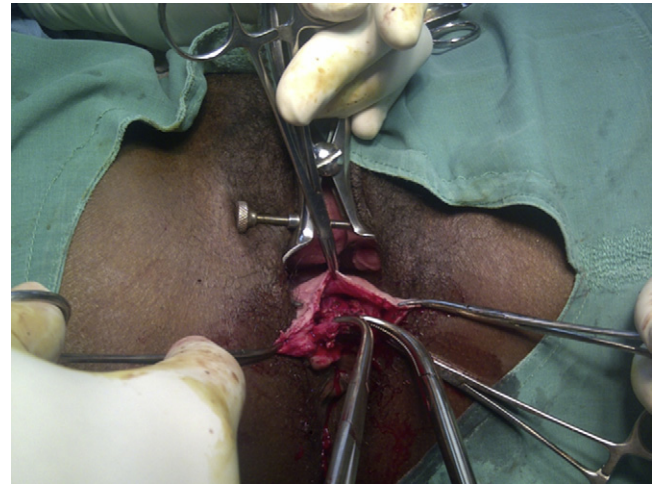
case reports<sup>2</sup> and small case series<sup>3–5</sup> documenting civilian non-obstetric anal sphincter injuries from a variety of causes.

This patient sustained sphincter injury during anal intercourse. Only a handful of reported cases have been secondary to anal intercourse, usually after sexual assault.<sup>2,4,5</sup> There is a greater propensity to develop injuries during anal compared to vaginal penetration because the ano-rectal mucous membranes do not provide sufficient lubrication for sexual intercourse.<sup>6</sup> Injuries are usually heralded by anodyspareunia – pain during receptive anal intercourse.<sup>6</sup> The risk increases without use of condoms<sup>6</sup> and with the use of alcohol and other recreational drugs,<sup>6</sup> both of which were present in this case.

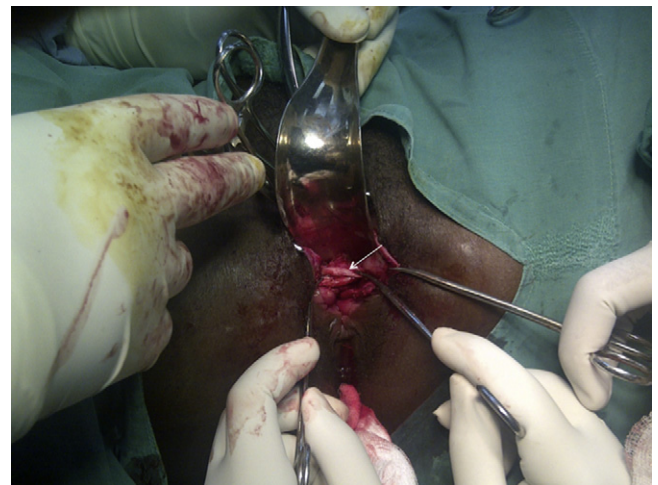
There are several potential dangers with anal intercourse including transmission of communicable diseases,<sup>7,8</sup> mucosal lacerations,<sup>6</sup> faecal incontinence<sup>6</sup> and injury to the anal



**Fig. 2.** The vaginal laceration has been extended and the anal flaps developed laterally to allow identification of the retracted sphincter ends (arrows).



**Fig. 3.** The sphincter ends have been identified. They are grasped with forceps to allow mobilization.



**Fig. 4.** The sphincter muscle is completely mobilized to allow for a 2 cm overlap at the midline (arrows).



**Fig. 5.** Overlapped repair of sphincter muscles with three interrupted mattress type sutures (arrows).



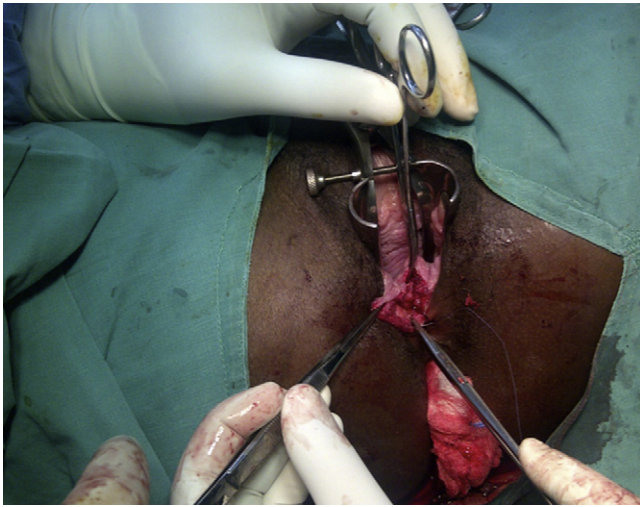


Fig. 6. Repair of the vaginal mucosa over the sphincter complex reconstruction.

sphincters.<sup>2–5</sup> We expect the incidence of anal injuries to increase parallel to the rising prevalence of anal intercourse in homosexual<sup>6</sup> and heterosexual relationships.<sup>9,10</sup> It is estimated that up to 40% of men and 35% of women engage in heterosexual anal intercourse.<sup>9,10</sup> Of course the prevalence of this activity varies by demographics and nationalities, ranging from a low of 3.5% of survey respondents in South Korea<sup>11</sup> to a high of 18.5% of survey respondents in France.<sup>12</sup>

Most genito-anal injuries are minor and only require symptomatic treatment. Rectal perforations and sphincter injuries, while much less common, demand emergent operative intervention. This patient sustained a severe perineal laceration. These lacerations can be graded according to their depth, with fourth degree lacerations being the most severe and representing completely transected anal sphincters and overlying anal mucosa.<sup>1</sup> These injuries are accompanied by serious morbidity in over 50% of cases, even after early detection and repair.<sup>1</sup> This emphasizes the need for appropriate surgical treatment.

This case illustrates the pertinent surgical principles that should be observed when repairing these injuries. It is important for experienced staff to perform anatomically correct repair.<sup>1</sup> The mucosa should be approximated with absorbable sub-mucosal sutures.<sup>13,14</sup> And slowly absorbable or non-absorbable sutures should be used to repair the anal sphincter,<sup>1,13,15</sup> preferably by the overlap technique.<sup>15,16</sup>

The need for simultaneous diversion of feces is an area that is under researched. Colostomies have been traditionally used to reduce infectious morbidity by diverting faeces away from the perineal repair. Loop sigmoid colostomies allow full diversion of feces away from the distal bowel limb,<sup>17</sup> are rapidly constructed and easily closed without laparotomy. They are readily accepted for secondary repairs and when patients develop frank recto-vaginal fistulae,<sup>1</sup> but the decision becomes less clear for primary repair of acute perineal lacerations.

The medical literature contains only a few case reports and small series with reports of colostomies during repair of acute injuries, but the indications are elusive and its performance is not standard.<sup>19,20</sup> There is also a marked difference in expert opinion, with 30% of coloproctologists but no obstetricians recommending diversion for third or fourth degree tears in a recent practice survey.<sup>1</sup> Colostomies may also impair healing by altering collagen metabolism in the de-functionalized rectum.<sup>20,21</sup> With attenuated mucosal defense and integrity, there is increased microbe translocation and infectious morbidity.<sup>22</sup> Finally, there is a further 20%

risk of potential morbidity at the time of colostomy closure<sup>20–22</sup> to consider.

We believe that post-coital anal sphincter disruptions should be repaired without diversion because they are low energy injuries with minimal tissue loss and excellent blood supply. Furthermore, the trans-anal approach affords excellent exposure of these injuries, abolishing the problem of difficult exposure in the pelvis at laparotomy.

#### 4. Conclusion

Post-coital anal sphincter injuries are uncommon injuries. They should be treated operatively on an emergent basis. Although repair of each injury should be individualized, the majority of these injuries do not require concomitant protective colostomy creation.

#### Conflict of interest

The authors have no financial and/or personal relationships to declare as conflicts of interest that could inappropriately influence their work.

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#### Ethical approval

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

#### Authors' contributions

Shamir O. Cawich contributed to study design, data collections, data analysis and writing. Leslie Samuels contributed to study design and writing. Ian Bambury and Cherian J. Cherian contributed to study design, data collections and writing. Loxley R. Christie and Santosh Kulkarni contributed to study design and writing.

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